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ABSTRACT

The purpose of this report is (1) to discuss the basic issues dealt with in examining the effectiveness of learning centers; (2) to relate preliminary work with learning center evaluation to the state delivery systems of Nebraska, Iowa, Kansas, and Missouri; and (3) to identify further work which is needed to extend the initial effort. The basic issues identified are (1) the criteria which serve as a focus for examining effectiveness, i.e., accessibility, relevancy, quality, learner outcomes, cost-effectiveness, impact, consequences, and contribution to knowledge; (2) the indicators or operational definitions of effectiveness; and (3) the standards or values of excellence applied to the interpretation of the indicators. Each of these basic issues is discussed as it applies both to the Nebraska learning centers and to the delivery systems in the University of Mid-America region. (Author/DAG)

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AN EXAMINATION OF LEARNING CENTER EFFECTIVENESS

Working Paper #11

Office of
Research and Planning

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University of Mid-America

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AN EXAMINATION OF LEARNING CENTER EFFECTIVENESS

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Learning centers, as a component in UMA delivery systems, are in various stages of development across the UMA region. Iowa is in the process of investigating the use of 12 area extension centers as possible learning center sites, but no delivery of services is expected in the Iowa delivery system until the early part of 1976. Kansas is planning a small scale delivery of one course in the Manhattan area, to begin October 1975. The initial Kansas delivery is expected to involve one or two learning centers. Missouri may have as many as ten learning centers in the pilot delivery of two courses starting September 1975. Learning center sites in Missouri have been identified for the St. Louis, Columbia, and Rolla areas. Within Nebraska, four learning centers have been operational since September 1974. These centers are located at Scottsbluff, Kearney, Omaha and Lincoln. Nebraska is presently the only UMA delivery system with the experience of operational learning centers. Therefore, much of the early work directed toward determining the effectiveness of learning centers has focused on Nebraska.

The purpose of this chapter is threefold: (1) to discuss the basic issues dealt with in examining the effectiveness of learning centers; (2) to relate preliminary work with learning center evaluation to the state delivery systems of Nebraska, Iowa, Kansas, and Missouri; and, (3) to identify further work which is needed to extending the initial effort.

Basic Issues

Three basic issues have surfaced as critical to an examination of learning center effectiveness. One issue is: How is learning center effectiveness to be defined? This issue refers to the criteria or dimensions which serve as a

focus for examining learning center effectiveness. Gooler (1975) has identified eight possible criteria for evaluating the success of an open learning program. These criteria, adapted to an examination of learning centers, could involve:

- the accessibility of a given learning center.
- the relevancy of learning center services to learner needs and aspirations.
- the quality of services rendered through learning centers.
- the learner outcomes which learning centers contribute to.
- the cost-effectiveness of a given learning center.
- the impact which a given learning center has on other educational institutions.
- the consequences which a given learning center has for individual and community priorities.
- the contribution to knowledge which is generated through one or more learning centers.

Each of these criteria represents a possible focus for examining a given learning center, and is thus a criterion for assessing learning center effectiveness.

A second issue related to an examination of learning center effectiveness is: What evidence is acceptable for describing the actual status of a learning center with respect to a given criterion? This issue refers to the indicators of learning center effectiveness. For example, an indicator of learning center accessibility could be the percentage of learners who enroll in a course and report that it would be possible for them to get to a learning center; or, the percentage of learners who report that it would be possible for them to get to a learning center and actually visit the center three or more times during a course. Indicators, therefore, are the operational definitions of criteria for examining learning center effectiveness.

A third, and final, basic issue to be discussed here is: What standards are employed for judging the adequacy of learning center status? A standard is a value of excellence applied to the interpretation of indicators data. For example, a standard acceptable for accessibility might be established as 90% of the learners who enroll in a course report that they can get to a learning center; or, 50% of the learners who report that it would be possible for them to get to a learning center actually visit the center three or more times during a course. Standards for interpreting evidence about learning centers with respect to a given criterion may be derived from several sources. Standards may be derived from an empirical basis. This could involve the comparison of one learning center with another, or the comparison of the status of a given learning center at two or more points in time. Standards also may be derived arbitrarily. Expectations for learning center performance may be through negotiated agreements between two or more parties, or simply by the fiat of an authority. Finally, as Gooler (1975, p. 5) has noted: "Different people may hold different standards relative to any given criterion." Each of these three basic issues will be discussed as they could apply to the Nebraska learning centers, and then the issues will be related to the delivery systems in the UMA region.

Criteria for Determining Learning Center Effectiveness

Earlier, Gooler's (1975) criteria were mentioned as potentially applicable for examining the effectiveness of learning centers. The meaningfulness of these criteria are, in part, related to the concept which people have about learning centers. Within the Nebraska delivery system (SUN), the learning center concept has evolved over the past three years. Changes in the learning center concept, and the current status of that concept, are important to a consideration of alternative criteria for assessing effectiveness.

During the early planning of SUN (1972-73), learning centers--which were then referred to as resource centers--were conceived of basically as depositories of instructional materials and media equipment, where learners could have convenient access to course materials they might need. Learning centers also were planned to be course testing sites, an answering service for course-related questions, and a place where learners could receive "counseling" for enrollment in SUN courses. If SUN learning centers would have been operated on this initial concept, the effectiveness criteria of accessibility, relevancy and quality would probably have been most applicable.

The year following the initial planning of SUN can be described as a pre-operational period. During 1973-74, SUN planners were preparing to open learning centers, as well as to begin the delivery of courses throughout the state. With the realities of delivery near at hand, some changes in the learning center concept occurred. Learning centers continued to be thought of as course materials depositories, testing sites, and answering services. But, learning centers also began to be thought of as: meeting places for learners enrolled in courses; locations where learners could contact resource persons by telephone and be contacted by them; places where faculty and learners could meet for individual and small group conferences; and, places where resource personnel could interest and motivate students. Changes also occurred in other dimensions of the learning center concept. In addition to registering learners for courses, learning center personnel were to participate in public relations and recruitment. A final addition to the learning center concept during 1973-74 was that the "counseling" of learners would include vocational-educational planning, in addition to counseling for course enrollment. The expansion of the learning center concept during the pre-operational period suggested some additional criteria applicable for evaluating effectiveness. The possible new criteria would be learner outcomes and impact.

Once learning centers became operational in the Fall of 1974, additional changes occurred in the concept of learning centers. While maintaining the course support functions planned from 1972-74, learning center staff began assisting the management of the SUN program with keeping records of student and staff activities, and maintaining working relationships with other institutions. Learners were counseled for not only vocational-educational planning, but also for the development of academic skills. Finally, two new functions were being performed by learning center staff. One function can be thought of as an educational clearinghouse/referral center, where materials which describe postsecondary educational opportunities are catalogued, where individual or group educational needs are expressed, and where referrals are made to the appropriate educational opportunity. A second new function during 1974-75 involved research and experimentation. With the clearinghouse/referral function, learning center personnel began performing an educational service new to many people. Also, learning centers became sites where course materials could be pilot tested, and inquiries made into the adult learner and learning. With the addition of these functions during 1974-75, it appears that the remainder of Gooler's list of criteria would be applicable to learning centers. These additional criteria would be cost-effectiveness, consequences, and contribution to knowledge.

The chart presented as Figure 1 illustrates the evolution of the SUN learning center concept. Much of this chart has already been discussed. However, three additional observations can be made. First, the range and criticality of functions outlined in the chart strongly suggests that much of the SUN program occurs around and through learning centers. With the exception of contact with administration and faculty through the central offices, and information which is transmitted through the communication

Functional Area/Center Concept	1972-73	1973-74	1974-75
I. COURSE SUPPORT FUNCTION			
A. Depository of Instructional Materials and Media Equipment.	X	X	X
B. Achievement Testing Site	X	X	X
C. Answering Service for Course-Related Questions	X	X	X
D. Meeting Place for Students Enrolled in Courses		X	X
E. Telephone Contact Center		X	X
F. Personal Contact Center for Keeping Students Interested and Motivated		X	X
G. Center for Individual/Group Conferences with Faculty		X	X
II. PROGRAM MANAGEMENT FUNCTION			
A. Course Registration Center	X	X	X
B. Promotional Center for Program		X	X
C. Student Recruitment Center		X	X
D. Record Keeping Center			X
E. Inter-Institutional Liaison Center			X
III. ACADEMIC/VOCATIONAL COUNSELING FUNCTION			
A. Counseling Center for Course Enrollment	X	X	X
B. Vocational-Educational Planning Center		X	X
C. Counseling Center for Developing Academic Skills			X
IV. CLEARINGHOUSE/REFERRAL FUNCTION			
A. Cataloguing Center for Postsecondary Educational Opportunities			X
B. Sensor of Community Educational Needs			X
C. Educational Opportunities Referral Center			X
V. RESEARCH/EXPERIMENTATION FUNCTION			
A. Implementor of New Educational Services			X
B. Site for Field Testing Course Materials			X
C. Research Center on Adult Learners and Learning			X

Figure 1. Evolution of the SUN learning center concept

media (TV, newspapers, etc.), the educational program of SUN could be viewed as being based in the learning centers. Second, if learning centers perform this range and criticality of functions, then a high commitment of resources to the centers would seem most reasonable. This commitment, ostensibly, would include a staff and faculty development program equal to the challenge. Third, the evaluation of learning centers within this conceptual framework is an extremely large task. It is a large task without considering the unique context and qualities of each learning center. For example, each of the four SUN learning centers is in a different geographical (and socio-cultural) area of the state, and in a different physical setting. The context of the learning center may require different patterns of and emphases on the functions performed.

Given all of this, on what basis should evaluations of learning center effectiveness be made? This is a question with which SUN learning center staff, faculty and administration must be involved. As a starting place, it seems most reasonable to investigate the criteria which have been derived from Gooler's, on the rationale that they represent the most comprehensive statement available on alternative dimensions for examining open learning programs, and that they are implied in the functions which SUN learning centers perform. Therefore, the next section will deal with evidence which might be used to indicate the status of SUN learning centers as they pertain to these criteria.

Indicators of Learning Center Status

During 1974-75, a range of indicators have been generated to describe the actual status of SUN learning centers. The question of acceptablity of these indicators depends, in part, on agreement about the concept of learning

centers, and, in part, on the standards which are applied to interpretations of indicators data. Some evidence available for describing the actual status of SUN learning centers are presented below within the eight criteria outlined above. Again, these indicators are assumed to be implied by the functions of the SUN learning centers.

Accessibility of Learning Centers

To what entent, and in what ways, are learning centers accessible to the target populations? Some indicators appropriate to the criterion of accessibility as applied to SUN learning centers are discussed below.

1. General proximity to learners. Four SUN learning centers are currently available to the target populations in Nebraska. Two of these learning centers are located in Eastern Nebraska in the two largest cities (Omaha and Lincoln), one is located in Central Nebraska (Kearney), and one is located in Western Nebraska (Scottsbluff). Of those learners who enrolled in the first two courses offered by SUN starting Fall, 1974, about 70% said they could get to a learning center (Brown, 1975; Sell, 1975). Roughly, about 40% of the Nebraska population is located within 15 miles of a SUN learning center (Nebraska's 1970 population was just under 1,500,000). Therefore, many Nebraskans, especially those in rural areas who do not have ready access to postsecondary educational institutions, cannot easily reach a SUN learning center. For these populations, 85 local libraries help serve as achievement testing sites for SUN courses, but other services are not currently available through local libraries.

2. Availability of telephone contact. Learners who cannot reach a learning center for personal visitations may contact a learning

center through telephone communications. Even though, theoretically, all learners have access to learning centers through the telephone, these contacts could be costly to the learner and the services available through telephone communications are thus limited. (It should be noted that any learner can use the toll-free telephone line to call SUN's central offices in Lincoln, where SUN faculty and administration can be reached.)

3. Conditions of access. The accessibility of SUN learning centers may be limited further by their physical location or hours they are open. One learning center is located on the ground floor of a shopping center in Downtown Omaha which provides convenient access to most people in the Omaha area. A second center is located in the basement level of the Nebraska Center for Continuing Education, on the East Campus of the University of Nebraska - Lincoln. Although most people in the Lincoln area may be able to get to the center, its downstairs location could prohibit some from its use because of physical handicaps. The Kearney learning center is located on the second floor of the Kearney State College library. An elevator can be used for access to the second floor. Finally, the Scottsbluff learning center is located on the facilities of the University of Nebraska's Panhandle Experiment Station, some 3 miles northwest of downtown Scottsbluff. The Extension Division of the University of Nebraska Lincoln and SUN share a learning center area on the ground floor. The two campus-based learning centers may cause some problems of access, due to parking inconveniences and/or the hesitancy for

some to go "on campus." Also, the environments of each of the learning centers should be examined for their warmth, and adequacy of space and furnishings.

Each of the learning centers, in beginning operations during Fall, 1974, surveyed learners in their areas regarding the desired hours of availability. Typically, learning centers were open from 8-5 daily, at least two nights per week, and times during the weekend. Learning centers usually were open about 60 hours per week.

4. Information about services. The criterion of accessibility also involves a consideration of who knows about the services of learning centers, and how and when they can be used. Each of the learners enrolled with SUN received a packet of information about learning centers and their use. Learning centers were described to enrollees as resource centers, the use of which was voluntary. The main emphasis in the literature sent to learners was "College at Home," which could have been perceived as down-playing the potential importance of learning centers to the education of the learner. Learning center staff also contacted learners in their area through letter and telephone calls. The letters and telephone calls from learning center staff introduced the learner to the staff and services available through the center, and encouraged the learner to contact the center whenever a need arose for which assistance was required. Specific data are not available for determining how many learners enrolled in SUN courses could accurately describe the services of a learning center, when to use a learning center, or how to use a learning center. As with

the SUN program, in general, this type of data may be important for making decisions about communications to the target populations.

5. Number of learners accessing. Finally, some may argue that the accessibility criterion is best evidenced by the number of learners who actually use learning centers, and the purposes for which they are used. Although the data are incomplete, some evidence is available for describing the extent of use by those who enrolled in the first two courses offered by SUN. Learning center staff were able to identify enrollees who fell into one of three categories:

Category 1--Learners in this category had MINIMAL OR NO PERSONAL CONTACT with learning centers. This category includes learners who took course tests at a library, who were talked to infrequently over the telephone, and who did not visit the learning center for viewing video tapes, meeting with faculty, counseling, or other services. (Note: Personal contact does not include form letters or routine notices sent to learners.)

Category 2--Learners in this category had SOME PERSONAL CONTACT with learning centers. This category includes learners who took tests at the learning center, who came to the learning center once or twice on routine matters (for example, to register in a course), who called the learning center once or twice on course-related questions (for example, to obtain the correct answers to exercises in study guide), but who did not use the learning center for viewing video tapes, meeting with faculty, counseling or other services. (Note: Personal contact does not include form letters or routine notices sent to learners.)

Category 3--Learners in this category had SUBSTANTIAL PERSONAL CONTACT with learning centers. This category includes learners who not only took tests at the learning center, but who also had frequent visitations for viewing video tapes, meeting with faculty, counseling, or other services, and/or who frequently called the learning center. (Note: Personal contact does not include form letters or routine notices sent to learners.)

With three learning centers reporting, the results obtained are summarized in Table 1. The evidence indicates that overall, for both courses and three learning centers, about 4 out of 10 enrollees (41%) had SOME or SUBSTANTIAL PERSONAL CONTACT with learning centers. The extent of enrollee contact varied by learning center, but was about the same for each of the first two courses. Based on these use data, the accessibility of learning centers is considerably less (70% to 41%) than those who reported that they could reach a learning center. The difference between potential and actual use rates may be partly a function of enrollee's underestimating the distance to learning centers, and partly a function of lack of need for or perceived utility of learning centers.

Equally important as a consideration of the numbers who use a learning center is the purpose for which learning centers were used. The main question here can be framed as follows: Do learning centers, in fact, extend or expand postsecondary educational opportunities? Again, the data are incomplete, but at least five primary uses of learning centers can be identified. First, it appears that the majority of enrollee visits to learning centers (about 55%) were for course testing purposes. Although exact data could not be tabulated from learning center records, those who enrolled for credit and found learning centers accessible were required to take 3 Accounting I tests and 5 Introductory Psychology tests.

Second, about 20% of the visits to learning centers were for viewing the television component in courses. Learners may have missed an ETV broadcast, may have wanted to review a program they watched, or may have wanted to preview a program which had not been aired. A significant number (about 15%) of visits to learning centers were for "counseling," including discussion with learning center staff about future course offerings, reactions

Table 1. Extent of personal contact with learning centers among enrollees in SUN's first course offerings.

	Accounting I	Introductory Psychology	Total
Category 1	147	112	259 (59%)
Category 2	61	47	108 (24%)
Category 3	41	33	74 (17%)
	249	192	441 (100%)*

*The total enrollees for both courses, counting withdrawals, was 706 (Accounting I-419; Introductory Psychology - 287).

to courses, personal educational goals, problems with a specific course, use of the WATS line, testing procedures, answers to Accounting I exercises, problems with studying, getting tests taken, etc. A relatively small percentage (about 5% each) were for individual or small group meetings with faculty, and for finding information about educational opportunities which might meet personal, vocational, or educational goals.

One could argue that these uses of SUN learning centers have, in fact, extended or expanded educational opportunities. However, the outcome of the argument depands on the definition of "extended and expanded educational opportunities." For example, do SUN learning centers deliver services which are unique or nonduplicable for the communities which are served? Or, do SUN learning centers serve a clientele which other postsecondary educational institutions are not serving? The SUN program, through its use of multimedia instruction and a network of learning context, is itself unique. The capability to allow learners to proceed at their pace, and to provide support for doing so, is linked to the services of learning centers where learners can be administered tests, review or preview videotapes, and meet with faculty when necessary. The "counseling" function of learning centers, and the motivation provided learners through it, is also noteworthy with respect to providing support for learners to proceed at their own pace. However, each of these four services could be, or is, duplicated in some form by existing educational agencies.

Perhaps, the most unique function of learning centers is what has been referred to the educational clearinghouse function. Learning centers attempt to provide information and services which help learners select the educational opportunity which most closely fits their needs. During a six-month period (January to June, 1975) learning center records indicate that 95 learners

were referred to some existing educational opportunity. Seven learners who were enrolled with SUN at the time were referred to educational opportunities offered by other institutions; of the remaining 88 learners not enrolled with SUN, 6 were referred to and enrolled in SUN courses, while 82 were provided information about both on-campus and off-campus opportunities to meet their needs. This evidence suggests that some SUN learners have educational interests which can be met by both on-campus and off-campus instruction. The uniqueness of SUN's clientele is yet to be fully established; however, it appears that SUN's learners, based on the first course enrollment, are somewhat distinct from the learners served through on-campus instruction (Brown, 1975; Sell, 1975). It has not been established to what extent SUN's learners are representative of or different from the "correspondence course," "extension class" or "adult education" population.

To summarize this section of the chapter, several indicators for the criterion of learning center accessibility have been discussed. Some evidence, although preliminary and incomplete, has been presented. From this evidence available, it appears that: (1) SUN learning centers are within 15 miles of about 40% of the Nebraska population, however, many Nebraskans in rural areas would probably find it difficult to get to a learning center; (2) SUN learning centers, as well as the central offices, can extend some limited services through telephone communications to all SUN enrollees; (3) the physical locations and hours of availability are not major inhibitors of learning center use; (4) more specific data needs to be collected from learners regarding their perceptions of learning centers, including the services which are available, when to use a learning center, and how learning centers can be used; and, (5) about 4 out of 10 learners enrolled in the first two courses offered through SUN had SOME or SUBSTANTIAL PERSONAL CONTACT

with learning centers, the majority of visits to learning centers being for course achievement testing, obtaining counseling, meeting with faculty, and obtaining information and referrals on existing educational opportunities. Clearly, more work needs to be done on indicators of accessability, a benchmark concept of open learning programs.

Relevancy of Learning Center Services

To what extent do learning centers provide services that are regarded to be of priority to learners, or to the program? The criterion of relevancy, as applied to SUN centers, can be considered in two parts. One part of the relevancy criterion relates to the needs of the learners which learning centers are meeting through its services. The course-related as well as general counseling and educational clearinghouse functions which learning centers serve can be interpreted as meeting the needs of learners. To what extent, and in what ways, these services meet the needs of learners requires further examination in order to present evidence.

Some evidence is available on the second part of the relevancy criterion, i.e., the needs of the program which learning centers are meeting. As discussed in a previous section, learning centers contribute to the management of the SUN program through a variety of activities, including learner recruitment, public relations, liaisons with other educational institutions, and record keeping. During the early days of SUN, the criticality of these activities was stressed repeatedly in meetings between SUN administration and learning center staff. Evidence of the extent to which these activities were carried out can be found in the monthly learning center reports, completed by learning center staff. For the nine month period, September 1974-June 1975, the following public relations and recruitment activities were reported for the four learning centers:

180 visitations were paid to local organizations to introduce the SUN program and its services.

12 presentations were made to civic groups, each telling the SUN story.

200+ employers were sent brochures and cover letters which described the SUN program.

10 TV interviews were taped and broadcast.

3 radio interviews were taped and broadcast.

7 newspaper interviews were published and broadcast.

5 TV commercials were taped and broadcast.

12 radio commercials were taped and broadcast.

2 news releases were prepared and disseminated.

4 open houses were held, drawing in excess of 300 persons.

In addition to the above, one learning center arranged for two banks to advertise SUN on their message boards. Visitors to the learning center included representatives from the SUN Advisory Council, Ford Foundation, Pakistan, Malaysia, Japan, Nigeria, the National Institute of Education, and the United States Navy.

A second learning center held a meeting of their Regional Advisory Board; visited 64 high schools in the area, meeting with students, counselors, and administration; spoke to a county secretarial group and a group called "Parents Without Partners;" and, made presentations to 2 college student groups.

A third learning center held a meeting between the President of the University of Nebraska and community leaders; spoke at conferences of county and home agents and mental health specialists; met with a school board; handed out SUN and learning center information at an A-V workshop, human resources fair, and professional career days for high school seniors and adults; and prepared an article for an Extension Division brochure.

The fourth learning center provided information to a reporter preparing a research article; spoke to servicemen on base; made a presentation to university graduate students; and talked about SUN at a regional adult education conference.

It appears that the four learning centers, as a group, were actively disseminating information about SUN to various groups, at different times, and in different locations. It is not known what effects these communications had on their target audiences.

A second function which learning centers help meet in program management is that of inter-institutional liaisons. It was already mentioned that 64 high schools and 2 college-university student groups were the audiences of public relations/recruitment efforts by learning center staff. In addition, ten meetings were held by learning center staff with area college or university administrators. These institutions included UNO, UNL, Kearney State College, Chadron State College, Nebraska Western College, and Mid-Plains Technical College. Again, the effect of these meetings has not been ascertained.

Finally, it should be noted that learning center staff also assisted the SUN program management through: contact with and mailing course achievement tests to 85 local libraries in Nebraska, which involved making arrangements for 5 Introductory Psychology tests and 3 Accounting I tests for each learner taking the course for credit who wished to use a local library; registering learners for SUN courses; administering course achievement tests to learners, and sending the results to the SUN faculty; handling returned instructional kits and damaged materials; maintaining videotape and office equipment; typing and duplicating letters; mailing test information to learners; determining which learners had not taken tests required of them; and, generally, maintaining contact with all learners in the programs. Assuming that these

are necessary priority activities, the next step would be to document the extent to which these activities occur, and the effects which they have.

Quality of Learning Centers

To what extent do the inputs to, processes and services of learning centers appear to be of high quality? This possible criterion for the assessment of learning centers has several alternative indicators. For example, the quality of learning centers may refer to the technical or managerial efficiency with which learning centers are operated. Or, the quality of learning centers may refer to the meaningfulness of learning center services for the intended users. As Gooler (1975, pp. 22-23) points out, quality may involve judgments about adequacy, appropriateness, scope, sequence, and assumptions about how adults learn. Furthermore, quality may focus on the resources which serve as inputs to learning centers, the processes whereby learning center services are developed and/or the services (products) themselves.

One indicator, therefore, of the quality of learning centers could be the perceived value of learning center resources. The staff of learning centers, which originally in SUN was a coordinator and staff assistant, are the full-time human resources committed to the center. Judgments made in the process of selection and placement represent one set of evidence about the quality of learning center staff. Presumably, individuals were selected and placed in jobs for which they were well qualified. The job descriptions which were developed for learning center staff could serve as one basis for evaluating the quality of learning center staff since they have assumed their position. Another set of evidences about the quality of learning center staff could be the inservice training and development program which each undertakes. Some of the early SUN learning center staff training and development activities

are described in Sell (1975, pp. 2[illegible]-35). Although these activities were not assessed by an external evaluator, more recent training activities are being evaluated (Walsh and Williamson, in progress). However, staff evaluations of what they obtained from the early training activities have been reported. If competencies are developed which improve the outlook or performances of learning center staff, then this could be evidence for judging learning centers to be of high quality.

Another input resource which could be examined for quality is the learning center facility itself. The physical attractiveness, ease of entry, adequacy of space and lighting, and appropriateness of furnishings are some of the items which could be assessed as indicators of learning center facility quality. Detailed plans were laid out for learning center specifications prior to the opening of learning centers. These plans, or an adaptation thereof, could serve as one basis for assessing the quality of the learning center.

A third input resource which could be examined for quality is the instructional media available through the center. This includes the print and nonprint instructional materials, as well as the hardware equipment needed for the nonprint materials. The major equipment in the learning center is the videotape playback unit and monitor. The videotapes, themselves, are part of the instructional components of SUN courses, and undergo evaluation as a part of the course field tests. Course texts and supplementary reading materials are some of the print materials, along with catalogues, brochures, and books on existing educational opportunities.

A second indicator of learning center quality could be the processes used to determine what learning center services to offer, when, and to whom. Whereas several efforts have been undertaken to assess the needs of potential learners for SUN courses, a similar needs assessment has not been completed

for learning center services. Some evidence is currently being collected to investigate the general need for learning center services in Missouri. As mentioned earlier, an investigation of learning center quality also may involve the logic of services offered through learning centers. For example, within the SUN delivery system, are learning center services carefully conceived and related to the overall program? Do learning centers have a distinct role within SUN? The 1974 UMA proposal to the National Institute of Education (pp. 26-30) discusses some ways in which learning centers are part of the SUN delivery system, and some of the unique contributions which learning centers could make. A careful examination must now proceed on the basis of what learning centers have in fact become, and what the operational relationships are to SUN learners, SUN administration, SUN faculty, and the faculty and administration of other programs. Also, the logic of SUN services available through learning centers could be indicated by the underlying assumptions about adult learners. What instructional model(s) is (are) being used in the services which learning centers provide? This issue has not been dealt with heretofore.

A third indicator of the quality of learning centers could be the perceived value of learning center services. When compared with other learning resources available in the first two SUN courses (Accounting I and Introductory Psychology), learners who <u>completed</u> the courses for credit ranked learning centers as less important than the text, study guide/newspaper, or television components (Brown, 1975, Sell, 1975). Learning center importance/helpfulness data is not available for those who took the courses for noncredit, or had not completed their course work by the nominal course ending date. However, unit evaluations completed by learners <u>during</u> the Introductory Psychology course showed learning centers to rank above the television and newspaper components

in their relative helpfulness, but relatively less helpful than the text, study guide, or toll-free telephone line. Clearly, more work needs to be done to establish the quality of learning center services with respect to course support.

Other learning center services could also be evaluated according to their perceived quality. The SUN administration and faculty could help judge the quality of the program management activities of learning centers; learners and other adult educators could help judge the quality of counseling services; learners and faculty/staff at other institutions could help judge the quality of referrals and educational information exchanged through learning centers; and, researchers and evaluators could help judge the quality of experimentation and documentation efforts at learning centers.

In summary, the quality criterion for assessing learning centers is extremely broad, and may refer to resource developments, processes, and/or services provided through learning centers. A meagre amount of evidence is currently documented with respect to the quality of learning centers. Some existing documents prescribe conditions of quality for learning centers, but these documents have not been weighed against the realities of operational centers. Finally, the SUN learners, administration, faculty, and learning center staff (as well as others outside SUN) must be involved with further examinations of the quality of learning centers.

Learner Outcomes

What learner outcomes or experiences result from the use of learning centers? This fourth possible criterion for assessing the effectiveness of learning centers also has a variety of alternative indicators. Some of these indicators, as applied to SUN, are discussed below.

1. Performance of users. One indicator for the criterion of learner outcomes as pertaining to learning centers is the achievement of learners who had SOME or SUBSTANTIAL PERSONAL CONTACT with learning centers. Based on data available August 15, 1975, from three learning centers, the performance of learners who enrolled in the first two courses offered by SUN had SOME or SUBSTANTIAL PERSONAL CONTACT with learning centers is summarized in Table 2.

Of the 61 who originally enrolled in Accounting I and Introductory Psychology for credit, and had SUBSTANTIAL PERSONAL CONTACT with learning centers, 50 (82%) completed the course with a passing grade, while 4 (7%) did not complete the course requirements by August 15, 1975, and 7 (11%) changed their course status from credit to noncredit. No withdrawals or course failures resulted in the SUBSTANTIAL PERSONAL CONTACT group. Thirteen noncredit enrollees, or 18% of the total group, has SUBSTANTIAL PERSONAL CONTACT with learning center staff. Of the 93 who originally enrolled in Accounting I and Introductory Psychology for credit, and had SOME PERSONAL CONTACT with learning centers, 51 (55%) completed the course with a passing grade, while 11 (12%) did not complete the course requirements by August 15, 1975, and 26 (28%) changed their course status from credit to noncredit. One withdrawal and four course failures (5%) resulted in the SOME PERSONAL CONTACT group. Fifteen noncredit enrollees, or 14% of the total group, had SOME PERSONAL CONTACT with learning center staff.

It appears from these data that those learners who took the courses for credit and had SUBSTANTIAL PERSONAL CONTACT with

Table 2. Course performance of enrollees who used SUN learning centers.

Learner Status	CATEGORY 2 SOME PERSONAL CONTACT	CATEGORY 3 SUBSTANTIAL PERSONAL CONTACT
Withdrawals	1 (01%)	0 (00%)
Changes to noncredit	26 (24%)	7 (09%)
Noncompleters	11 (10%)	4 (05%)
Completers with passing grade	51 (47%)	50 (68%)
Completers with failing grade	4 (04%)	0 (00%)
Noncredit	15 (14%)	13 (18%)
Totals	108(100%)	74(100%)

learning centers had a high probability of successfully completing the course. In fact, 92% of the group who remained in the courses for credit successfully completed the courses. It is significant that no course withdrawals or course failures resulted in this group. It is not known to what extent the noncredit enrollees achieved their personal objectives in the course. About half of those learners who took the courses for credit and had SOME PERSONAL CONTACT with learning centers successfully completed the course. When considering only those enrollees in this group who continued the course credit, 82% successfully completed the courses, which again is noteworthy. These preliminary data suggest that the extent of personal contact with learning centers has a significant, positive relationship with learner outcomes. This does not mean that a cause-effect relationship has been established, but only that a significant association has been observed between personal contact with learning centers and course achievement.

2. Comparative performance of users and nonusers. A second indicator of learner outcomes associated with learning center use is the comparison of those who did and did not have personal contact with learning centers. Table 3 summarizes data available from three learning centers on the comparable course performance of the three groups of learners previously described. The findings, based on this preliminary data, can be stated as follows:

A. Of the 3% who withdrew from the courses, all but one individual had minimal or no personal contact with learning centers.

Table 3. Comparative course performance of enrollees who did and did not use SUN learning centers.

	Extent of Contact			
Learner Status	Category 1	Category 2	Category 3	Totals
Withdrawals	15 (06%)	1 (01%)	0 (00%)	16 (03%)
Changes to noncredit	68 (26%)	26 (24%)	7 (09%)	101 (23%)
Noncompleters	29 (11%)	11 (10%)	4 (05%)	44 (10%)
Completers with passing grade	67 (26%)	51 (47%)	50 (68%)	168 (38%)
Completers with failing grade	3 (01%)	4 (04%)	0 (00%)	7 (02%)
Noncredit	77 (30%)	15 (14%)	13 (18%)	105 (24%)
Totals	259(100%)	108(100%)	74(100%)	441(100%)

Category 1 - MINIMAL OR NO PERSONAL CONTACT
Category 2 - SOME PERSONAL CONTACT
Category 3 - SUBSTANTIAL PERSONAL CONTACT

B. Learners were less likely to change from credit to noncredit, or to not complete a course, if they had substantial personal contact with learning centers.

C. The greater the extent of personal contact with learning centers, the more frequently learners completed the course with a passing grade.

D. Those taking the course for noncredit were likely to have minimal or no personal contact with learning centers.

Again, these data do not suggest cause-effect relationships. Other kinds of personal contact, e.g., via the toll-free telephone line, are not considered in these preliminary data. Furthermore, additional analyses of the background characteristics of learners in each of the three groups would be warranted.

3. Attitudes. Learner outcomes other than course achievement may also serve as indicators for examining learning center effectiveness. For example, the attitude which learners have about their course work, or the subject matter of their course work, could be important dimensions of their experience. The learner outcomes from the counseling experiences should be investigated in this regard. Also, the information and discussions provided learners about alternative educational opportunities may have created some new awareness and, perhaps, changes in the learners' self-image or vocational/educational goals. Further examinations should occur in this area.

4. Appeal. In addition to the learners' attitude toward course work, learning centers could be examined on the basis of how

learners feel about the use of learning centers. Presumably, positive feelings about the learning center and its services contributed to the use rate and consequences of the learning center program.

5. Retention. Finally, learner outcomes could be examined from a perspective of longer-term effects. For example, do learners who have substantial contact with learning centers re-enroll with SUN, or more frequently so than learners with minimal or no personal contact with learning centers? The preliminary data gathered for this report will need to be followed through to obtain an answer to this question. Learners who use learning centers more frequently may enroll in educational opportunities other than SUN. This is an important issue which also requires follow-up. Finally, learners who use learning centers may choose to become full-time campus students, or to pursue a certificate through an external degree program. The analysis of preliminary data do not permit the answers to any of these questions.

To summarize, learning centers may be examined on the basis of learner outcomes to which learning centers contribute. The preliminary data available from SUN learning centers indicate that the (successful) course completion rate is directly related to the extent of personal contact with learning centers. Of those who remained in the first two SUN courses for credit, 92% of those with SUBSTANTIAL PERSONAL CONTACT with learning centers successfully completed their courses. Indicators of learner outcomes other than course-related have not been collected. Use of learning centers should be examined with respect to attitude toward course work, changes in self-image or vocational-educational goals, feelings toward the SUN program, and consequences such as re-enrollments

in SUN courses, enrollments in educational opportunities other than SUN, and full-time students on campus.

Cost-effectiveness of Learning Centers

How costly are learning centers, compared to their effectiveness? Up to this point, some evidence and discussion has been presented on the criteria of access, relevancy, quality and learner outcomes. Following this section, the criteria of impact and consequences will be discussed. Theoretically, indicators for each of these criteria can be compared with the costs of learning centers to obtain a cost-effectiveness index. A meaningful cost-effectiveness index is strictly theoretical at this point in time. However, the fact that costs weigh heavily in decisions about educational alternatives, and that judgments must also be made about the predicted effectiveness of alternative patterns of educational systems, requires a careful consideration of cost-effectiveness as applied to learning centers.

During 1974, SUN underwent an economic analysis by a firm of economic consultants (Attiyeh and Lumsden, 1974). The purpose of that analysis was to prepare an economic model (a set of assumptions) which would undergird a plan for accomplishing the self-sufficiency of the open learning system. One finding of the economic analysis was that SUN learning centers are a major cost in the delivery system. One study is underway at the present time to accumulate and display cost data with respect to learning centers, as a part of the state delivery system. The results of that analysis will show, if Attiyeh and Lumsden (1974) are correct, that the costs of learning centers must be carefully controlled for an economically viable delivery system. Given these considerations, it is imperative that data about the performance of learning centers are also available.

The generation and presentation of cost-effectiveness data may take several forms. One alternative form would be to compare the costs and "effectiveness" of one learning center to another. This analysis, as well as other types of cost-effectiveness analyses, would require agreement on what constitutes cost and what constitutes effectiveness. Such agreements can and do get made.

A second form of cost-effectiveness comparisons may involve the comparison of the costs of a given learning center with the effectiveness of that learning center over time. Judgments would have to be made about the relative balance which a given learning center should have in the weighing of costs and effectiveness.

A third form in which comparisons could be made would be more hypothetical. For example, if SUN did not have learning centers, what would be the relative effectiveness and cost of the delivery system? This notion is similar to the attrition studies described by Gooler (1974), i.e., where one component in an instructional system is omitted to see what consequences obtain. Or, what costs and effectiveness would the delivery system have if existing libraries in the state became SUN learning centers? This type of analysis would have to deal with the alternative arrangements possible through libraries, and who would share what portion of the costs. Another example could be the cooperative sponsorship of learning centers with University Extension. Or, communities in the state could be approached to establish their own learning centers with some assistance from SUN. The notion for analyzing each of these hypothetical relationships would be the same: to determine, by comparison, which arrangement would be the least costly and/or most effective. The economic term for this process is optimization.

Impact of Learning Centers

To what extent, and in what ways, do learning centers influence the policies and directions of programs, institutions or agencies? The criterion of impact, as applied to learning centers, may refer to the effect on policies and directions of the internal organization or to external organizations.

Within the UMA/SUN organization, it is difficult to assess the extent of impact of learning center staff on policies and directions. One difficulty with this assessment is identifying what constitutes influence. For example, several meetings have been held at which learning center staff have participated with other SUN and UMA staff. Most of these meetings have been held, ostensibly, to touch base with others in the organization and to resolve immediate problems. The outcomes of these meetings, in terms of changed policies or practices, is difficult to identify. In general, learning center staff input can be viewed as one set of influences on internal policies and directions, but the specific nature and influence of that input has not been examined. Other sessions with learning center staff have occurred at the learning centers, in small groups or one-to-one discussions. It appears that the impact of these sessions may be more concretely identified. For example, the course team producing "The Great Plains Experience: A Cultural History" held pilot testing sessions at each of the SUN learning centers. Upon returning from these pilot tests, course team members have been supportive of continued pilot testing at learning centers and the need for course development and delivery to be more closely linked. It will be important to see if UMA procedures used in the future do indeed involve learning centers and their staff more fundamentally in the development of courses.

External to the UMA/SUN organization, learning center staff have been active in developing cooperative arrangements with other institutions and

agencies. The cooperation of libraries around the state in administering achievement tests for SUN courses is one example of this kind of impact. Another example is the working relationships between UNL-Extension and SUN in Western Nebraska, where the learning center is shared by SUN and UNL Extension. A paper has been prepared by McDonald (1974) which discusses the prospects and problems of establishing these cooperative arrangements. A third type of impact may be in the offing with regard to traditional programs and institutions. SUN learning center staff have met with representatives from eight campuses in the state, seeking to encourage cooperative arrangements.

The cooperation which has been gained or is in the offing, undoubtedly, will be facilitated through learner referrals from SUN learning centers. As mentioned earlier, during the first six months of 1975, 95 learners were referred to educational opportunities through the "clearinghouse" function of SUN learning centers. Of these 95 learners, 33 were referred to on-campus opportunities, 22 were referred to University Extension opportunities, and 6 enrolled in SUN courses. The remaining 34 were provided with information about alternative programs they wanted to consider. The impact of learning centers, in this sense, could refer to the number of learners who are referred to and participate in other programs.

As with indicators of other criteria by which learning centers could be assessed, the impact criterion permits several kinds of evidence. These kinds of indicators have been discussed above: changed policies and directions of the internal organization; cooperative arrangements which have been developed through existing institutions or agencies; and learners who inquire about and enroll in programs to which they are referred.

Consequences of Learning Centers

What are the short and long range consequences of the existence of learning centers for individual and societal priorities? The criterion of consequences is the most difficult to define with respect to learning centers. Part of the difficulty is that many potential consequences of learning centers cannot be evidenced in the short run. For example, the successful development and operation of learning centers in Nebraska could serve as a model for health care delivery systems, poverty programs or senior citizen centers in the state. Although much can be learned from the delivery systems of other social services, SUN also has a great deal to offer. Whereas SUN is attempting to establish cooperative arrangements with educational institutions, SUN may be linked in the long run with other social services, too. SUN learning centers could contribute much to a better understanding of the educational needs of various segments of the population. But, these consequences are not likely to occur in the next year or two. Given the incremental nature of most institutional changes, the next 5-10 years would be a more appropriate time perspective in which to expect these possible consequences.

Consequences to individuals may occur in both the short and long run. A learner who successfully completes a SUN course for credit may gain the confidence needed to pursue a program leading to a degree or certificate. Learning centers could be the important linking agents between degree programs and learners who want to obtain degrees without becoming full-time, on-campus students. Or, learning centers could be instrumental, over time, in helping individuals in their occupational development, including the change of occupations. Additional consequences to individuals may occur in working with learning center staff to more fully use the leisure time which is available.

A final example to be mentioned here is that those who use learning centers may become more active in local community politics and governance.

Although evidence concerning these potential consequences of SUN learning centers is not available at present, an awareness of these possibilities should be reflected in current data collection efforts.

Contributions to Knowledge from Learning Centers

To what extent do learning centers contribute knowledge useful to a better understanding of the problems, issues, and practices of adult education? This eighth possible criterion for the assessment of learning center effectiveness could be evidenced through the following:

1. "Facts" and "judgments" which are recorded about learning centers by their staff. At the present time, SUN learning center staff are keeping daily records about items such as who uses the learning center and for what purposes, staff activities both inside and outside the learning center, etc. These daily records are tabulated for a monthly report completed by each learning center. In addition, at various times learning center staff may prepare a report which shares the perceptions and judgments about the learning center and its operations.

2. Systematic variation of learning center services and subsequent analysis. Learning centers already have been used as pilot testing sites for courses. Within the pilot testing sessions, materials and procedures can be varied to determine which course materials and services are most desirable, or need to be supplemented through other resources. As with varying procedures for pilot testing sessions, learning center staff could try out alternative procedures

for their counseling and educational clearinghouse function. Also, telephone communications with learners could be subjected to alternative approaches. The purpose of the variation would be to examine which alternative approaches produce the most positive results.

3. Working hypotheses which are postulated by learning center staff. With the experience of operational learning centers, the staff has acquired an experience base which must be drawn upon and shared. One way in which this experience could be shared is in the form of expectations, or hypotheses, about the performance of learning centers. These working hypotheses could then be subjected to testing.

4. Charting learning center indicators over time. By definition, an indicator is a measure of learning center performance at a point in time. The importance of indicators is their relative change over time. Therefore, indicators give clues to possible longitudinal studies which could contribute greatly to the knowledge base of open learning programs.

Standards for Interpreting Learning Center Indicators Data

Thus far in this chapter, criteria for examining learning center effectiveness have been discussed in relation to (a) the evolution of the learning center concept in the SUN delivery system, and (b) some evidence which could indicate the status of SUN learning centers with respect to these criteria. Prior to considering the implications of learning center evaluation for the state delivery systems, it is important to discuss how the evidence could be interpreted, recognizing that at this point in time we are dealing with preliminary and incomplete data.

Previously, two kinds of standards were discussed in the introduction to the basic issues. One kind of standard was referred to as an empirical standard, whereas the other kind of standard was referred to as an arbitrary standard. The purpose of this section is to illustrate the two kinds of standards as applied to SUN learning centers.

A data summary of visits to SUN learning centers during the period September 1974 to June 1975 appears in Table 4. This data summary can be used to illustrate the concept of empirical standards. During the ten month period, an average (mean) of 247 visitations per month resulted for all four learning centers. On the average, 160 individuals paid single monthly visits to the SUN learning centers, while 24 visited the learning centers twice, eight visited the learning centers three times, and five visited the learning centers more than three times. These statistics could be used as empirical standards, i.e., expectations for judging the accessibility of learning centers as a group. Or, with twice as many course enrollments, the empirical standards might be raised by a factor of 2. Without knowing what exactly these statistics refer to, such empirical standards may not appear meaningful. However, when categories about the purposes of learning center visitations are added to these statistics, they become more meaningful. For example, the average monthly visits might be broken down as in Table 5.

Assuming the accuracy of these data, expectations might then be refined with respect to purpose (function) as well as numbers being served. A further possible refinement of the data would be to identify the purpose and number of visits for enrollees who paid single monthly visits, versus those who visited the learning center more than once in a given month. For all visitations during the ten month period, single monthly visits accounted for about 63% of the total, while "two-timers" accounted for 19% of the total, "three-

Table 4. Visits to SUN Learning Centers
September 1974 - June 1975
(As Reported on Learning Center Logs)

	Sept. 1974	Oct. 1974	Nov. 1974	Dec. 1974	Jan. 1975	Febr. 1975	Mar. 1975	April 1975	May 1975	June 1975	Sept. 1974 to June 1975
Lincoln											
One-timers	--	25	45	29	18	32	43	55	43	22	312
Two-timers	--	7	17	7	13	6	4	7	7	7	75
Three-timers	--	1	5	3	1	3	2	2	2	--	19
More than 3	--	2	3	1	1	2	1	4	--	1	15
Total	--	50	106	56	51	61	61	94	63	40	582
Kearney											
One-timers	39	21	32	21	30	29	13	14	46	38	283
Two-timers	5	2	5	2	1	1	2	3	2	1	24
Three-timers	2	--	3	--	--	--	--	--	1	2	8
More than 3	--	--	--	--	--	--	1	1	--	--	2
Total	55	25	51	25	32	31	22	24	53	46	364
Omaha											
One-timers	42	67	126	92	40	52	69	67	65	71	691
Two-times	3	14	11	9	6	7	5	8	5	2	70
Three-times	--	3	5	4	4	4	2	3	2	--	27
More than 3	--	--	--	--	2	2	2	2	1	--	9
Total	48	104	163	122	72	86	93	100	85	75	948
Scottsbluff											
One-timers	13	75	85	25	30	5	23	7	3	7	273
Two-timers	4	15	12	4	2	15	7	3	2	2	66
Three-timers	3	5	3	2	1	--	5	1	6	3	29
More than 3	2	7	9	1	1	--	--	1	--	--	21
Total	38	148	156	44	41	35	52	20	25	20	579
All Centers											
One-timers	94	188	288	167	118	118	148	143	157	138	1,559
Two-timers	12	38	45	22	22	29	18	21	16	12	235
Three-timers	5	9	16	9	6	7	9	6	11	5	83
More than 3	2	9	12	2	4	4	4	8	1	1	47
Total	141	327	476	247	196	213	228	238	226	181	2,473

Table 5. An example of the number and percentage of visits to SUN learning center by purpose.

Purpose	Number	Percentage of total visits
Achievement testing	136	55%
Viewing videotapes	50	20%
Counseling	37	15%
Meeting with faculty	12	5%
Obtaining information on educational opportunities	12	5%
	247	100%

timers" accounted for 10% of the total, and those who visited the learning center more than three times in a given month ($\bar{x}$ = 4.15) accounted for 8% of the total. It is interesting to note that the percentages of the four kinds of user groups follow somewhat closely the pattern found in the purposes for which learning centers were used. We do not know if these data are correlated; a hypothesis is that those who tend to visit learning centers only a single time during a given month tend to do so for achievement testing reasons, while those who visit learning centers more than once in a given month do so for purposes in addition to achievement testing. This discussion has proceeded on the assumption that learning centers can successfully deliver services other than achievement testing to learners and that these additional services are important reasons why learning centers exist. It further assumes that telephone communications are limited in the extent of learning center services which can be offered. Therefore, if empirical standards are used, it would be advisable that numbers be linked to purposes and learner use groups.

A similar type of analysis could be done for comparisons between learning centers, and for a given learning center between two or more points in time. Furthermore, trend data could be utilized for examining the status of all learning centers over time. The visitations to learning centers, based on the data presented, is uneven between months. However, some recognizable pattern may be identified in future, more refined data.

A second kind of standard which could be employed is an arbitrary standard. Such a standard may emerge from negotiated agreements between two parties, or be established by fiat by someone in a position of formal authority. Whichever the case may be, let's return to the data presented on learning center visitations for our example. One arbitrary standard could be

that if the videotapes in a learning center were not used more than 15 times per month (on the average), then the investment in videotapes and the necessary equipment and space would not be worthwhile. This standard would not have to be based on empirical data about videotape viewing behavior; it could be based on personal preferences, intuition or, perhaps, even cost information. Arbitrary standards, therefore, could also be established for the counseling, educational clearinghouse, and faculty meeting functions of learning centers. In educational endeavors, most standards are set arbitrarily.

Implications for State Delivery Systems

A basic premise of this chapter is that a network of learning centers, which are linked to cooperating institutions and agencies, is a fundamental component of state delivery systems. A further assumption is that learning centers can serve an important educational function in attracting, motivating, retaining, developing, and referring learners. An examination of the effectiveness of learning centers, therefore, should have important implications for state delivery systems. A few of these implications related to criteria of effectiveness are outlined briefly below.

1. The access criterion, as discussed in this chapter, raises a number of critical issues about learning centers. One of these issues deals with alternative locations of learning centers to provide accessibility to the target populations. The access criterion also raises the issue of who these target populations are and how they can be reached through learning centers. A major challenge of state delivery systems will be how to reach those who are not near a postsecondary educational institution. The

possible use of libraries as alternative learning center cites should be considered, as well as area extension offices.

2. The relevancy criterion suggests that services offered through learning centers should be subjected to the assessment of needs for those services. Services offered through learning centers may be directed at the needs of individuals who enroll in courses, or who are not enrolled in courses but have interests in using the center. Learning centers also can serve an important program management function through public relations, recruiting, record keeping, and liaisons with institutions and agencies in the area. Finally, learning centers may help to meet the needs of existing, traditional programs which are trying to reach an expanded clientele of part-time students and students who wish to earn degrees while continuing other responsibilities off campus. Learning center support may be justified from any or all of these three areas of relevancy.

3. The quality criterion suggests evaluation activities for state delivery systems in the personnel selected and developed as learning center staff, the physical and material resources of learning centers, the procedures used in developing learning center services, and the services themselves which learning centers perform. One of the important considerations about quality is that the concept may differ among different people. Some may stress the technical or managerial qualities of learning center staff; others may stress the logic (or face validity) of the services rendered. The fact that individuals both within and outside the open learning program make judgments about the quality of learning centers suggests that state delivery systems attend to both audiences. Learners, staff,

faculty, and administration all could play an important role in attempts to improve the quality of learning centers.

4. The learner outcome criterion may be another important justification for learning centers. For some, evidence of not only the educational experience but also the educational outcome is critical. This criterion suggests, furthermore, that the role of faculty and mediated instruction be related to the contributions of learning center personnel. Ideally, an integrated effort would be obtained through the use of learning centers, faculty expertise, and mediated instruction. Learner outcomes contributed by learning centers, in addition to course-related, may be important for delivery systems to document. For example, the results from counseling efforts and referrals may add an important value to both individuals and institutions. The attitudes which learners develop through their use of learning centers is yet another consideration.

5. The cost-effectiveness criterion suggests that the effects of learning centers be considered when making judgments about worth in terms of budgets and other financial planning. Ways of utilizing present personnel and facilities in cooperative efforts with open learning programs is another important cost-effective consideration, Rather than funding entirely new efforts, existing or add-on capabilities may make the most sense. Finally, sharing resources (like videotapes, materials, etc.) between learning centers could save costs while not detracting greatly from the effectiveness.

6. The impact criterion is another way of thinking about the potential contributions of learning centers. It appears from the SUN experience that resource personnel who live and work in the communities of the state are important factors in achieving impact on local agencies and institutions. Delivery system personnel would do well to identify individuals throughout the state who could work with a learning center (or maybe establish a satellite center) to help meet the interests and needs of people in the local community. Another point of impact may occur in the adoption of materials and procedures used by learning center staff in their recruiting, counseling and educational referral activities. Finally, impact of learning centers could be found in additional consortial or cooperative efforts which germinate in the state.

7. The consequence criterion tends to cover long-term effects which result from learning centers. The tendency is not to deal with these potential effects until they occur. However, planning and placing learning centers may be improved through considerations of the longer term effects which learning centers might have on individuals and communities.

8. The contribution to knowledge criterion points out the need for each member in the state delivery system to continue his or her intellectual growth. Learning centers are ideal contexts for better understanding the adult learner, and instruction which meets the background characteristics and interest of the adult learner. The learning center also provides a base from which community growth and development can be observed. As new learning centers are established, or existing facilities become learning centers,

the study of an innovation--an intervention into the community--could be exciting and could produce useful information for future efforts. Finally, trying to understand the effects which public relations efforts and inter-institutional contacts have on their audiences should advance the ability to design messages and communication channels most conducive to positive influence.

Further Work Needed to Extend This Initial Inquiry

Future directions for examining the effectiveness of learning centers could be among the following.

In Nebraska:

- Deciding upon the priority functions of learning centers within the context of the state delivery system;
- Determining how the criteria of effectiveness are to be operationalized, communicated, and followed up (including the decision of who should be involved in the process, and when);
- Specifying the basis upon which learning centers will be continued and/or expanded in the state;
- Refining instruments for the collection of indicators data;
- Comparing the costs of learning centers with indicators of effectiveness.

In Missouri, Kansas and Iowa:

- Focusing in on what can be learned from SUN's operation of learning centers;
- Creating alternative learning center plans and cooperative agreements;
- Determining to what extent learning centers could be created as the linkage agents for external degree programs;
- Cultivating relationships with other institutions and agencies in the state through educational information exchanges;
- Experimenting with pilot learning centers and collecting data relevant to alternative forms and functions of learning centers.

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